WHAT IS CLAIMED IS:

1. An antenna coupling module comprised of a planar antenna and a substrate forming a planar superconductive high frequency circuit arranged in a perpendicular direction with respect to the element surface of said planar antenna and having said planar antenna and said superconductive high frequency circuit electromagnetically coupled.

2. An antenna coupling module as set forth claim 1, wherein the perpendicular distance of the electromagnetically coupled space has a length of not more than 1/4 of the effective wavelength.

3. An antenna coupling module as set forth in claim 2, wherein said effective wavelength includes from a microwave to a milliwave band.

4. An antenna coupling module as set forth in claim 1, wherein said planar antenna and said superconductive high frequency circuit have a 1/4 wavelength type feeder line, respectively as a coupling circuit thereof.

5. An antenna coupling module as set forth in claim 4, wherein a dielectric body is arranged between 1/4 feeder lines for coupling circuit of said planar antenna and said superconductive high frequency circuit.

6. An antenna coupling module as set forth in claim 5, wherein at least one type of ingredient selected from the group consisting of magnesium oxide, mullite, forsterite, titanium oxide, lanthanum aluminate, sapphire, alumina, strontium titanate, magnesium titanate, calcium titanate, quartz glass, polytetrafluoro-ethylene, polyethylene, a polyimide, polymethylmethacrylate, a glass-epoxy composite, and a glass-polytetrafluoroethylene composite is used as the ingredient of the dielectric body.

7. An antenna coupling module as set forth in claim 1, wherein an oxide superconductor is used as the conductor of said superconductive high frequency circuit,

and said superconductive high frequency circuit has at least one type of circuit selected from the group comprised of a phase circuit, filter circuit, through line, delay circuit, coupler, distribution circuit, and composite circuit.

8. An antenna coupling module as set forth in claim 1, wherein said planar antenna has at least one type of antenna element of the dipole type, patch type, and log-periodic type.

9. An antenna coupling module as set forth in claim 1, wherein an oxide superconductor is used as the conductor for said planar antenna.

10. An antenna coupling module as set forth in claim 1, wherein the oxide superconductor for said superconductive high frequency circuit or said planar antenna is at least one type of oxide high-temperature superconductor selected from the group comprised of $Bi_{n1}Sr_{n2}Ca_{n3}Cu_{n4}O_{n5}$ (where, $1.8 \leq n1 \leq 2.2$, $1.8 \leq n2 \leq 2.2$, $0.9 \leq n3 \leq 1.2$, $1.8 \leq n4 \leq 2.2$, and $7.8 \leq n5 \leq 8.4$), $Pb_{k1}Bi_{k2}Sr_{k3}Ca_{k4}Cu_{k5}O_{k6}$ (where, $1.8 \leq k1+k2 \leq 2.2$, $0 \leq k1 \leq 0.6$, $1.8 \leq k3 \leq 2.2$, $1.8 \leq k4 \leq 2.2$, $1.8 \leq k5 \leq 2.2$, and $9.5 \leq k6 \leq 10.8$), $Y_{m1}Ba_{m2}Cu_{m3}O_{m4}$ (where, $0.5 \leq m1 \leq 1.2$, $1.8 \leq m2 \leq 2.2$, $2.5 \leq m3 \leq 3.5$, and $6.6 \leq m4 \leq 7.0$), $Nd_{p1}Ba_{p2}Cu_{p3}O_{p4}$ (where, $0.5 \leq p1 \leq 1.2$, $1.8 \leq p2 \leq 2.2$, $2.5 \leq p3 \leq 3.5$, and $6.6 \leq p4 \leq 7.0$), $Nd_{q1}Y_{q2}Ba_{q3}Cu_{q4}O_{q5}$ (where, $0 \leq q1 \leq 1.2$, $0 \leq q2 \leq 1.2$, $0.5 \leq q1+q2 \leq 1.2$, $1.8 \leq q2 \leq 2.2$, $2.5 \leq q3 \leq 3.5$, and $6.6 \leq q4 \leq 7.0$), $Sm_{p1}Ba_{p2}Cu_{p3}O_{p4}$ (where, $0.5 \leq p1 \leq 1.2$, $1.8 \leq p2 \leq 2.2$, $2.5 \leq p3 \leq 3.5$, and $6.6 \leq p4 \leq 7.0$), $Ho_{p1}Ba_{p2}Cu_{p3}O_{p4}$ (where, $0.5 \leq p1 \leq 1.2$, $1.8 \leq p2 \leq 2.2$, $2.5 \leq p3 \leq 3.5$, and $6.6 \leq p4 \leq 7.0$).

11. An antenna coupling module as set forth in claim 8, wherein said planar antenna is a non-superconductive element.

12. An antenna coupling module as set forth in claim 1, wherein said superconductive high frequency

circuit or said planar antenna is cooled to not more than 100K.

13. A telecommunications base station mounting an antenna coupling module comprised of a planar antenna and a substrate forming a planar superconductive high frequency circuit arranged in a perpendicular direction with respect to the element surface of said planar antenna and having said planar antenna and said superconductive high frequency circuit electromagnetically coupled.